

REMARKS

The Formal Drawings submitted with the present continuation application have been corrected to meet the requirements which were indicated to be acceptable during prosecution of the application which is the parent of the present application.

The disclosure was previously objected to based on an interpretation of subject matter at Page 16, lines 30 - 32, continuing at Page 17, lines 1 - 18 of the application, where there is a discussion of the discovery that it is possible to expose a surface of the photocathode to “an intense electromagnetic beam, such as the exposing (patterning radiation) laser itself . . .”, without rendering the photocathode unsatisfactory for further use. The intense electromagnetic beam is typically said to be “operating in the ultraviolet range. As shown in FIG. 6, a cesium telluride photocathode can be exposed to a power density of 10^7 Watts per square centimeters and still maintain a QE above 4%.” The inventors then go on to explain that since the QE of a cesium telluride photocathode actually increases with power density at least below a certain threshold, the photocathode can be regenerated by exposure to radiation from the laser itself.

This is in contrast with the embodiment shown in FIG. 5C, where it is necessary to apply contacts 506a and 506b to apply a current to the plane of the film and heat the film, and where the contacts occupy a portion of the photocathode surface.

Once it is determined that the laser radiation can be applied to the photocathode surface directly, without harming the ability of the photocathode to perform subsequently, such contacts are not needed to provide heating for regeneration of the photocathode (to reduce the effects of degradation of the photocathode which have occurred during use).

Although applicants determined that the photocathode was still useful after exposure to laser radiation at a power density of about 10^7 Watts per square centimeter, the recommended power density for the regeneration cycle ranges from about 10^4 to 10^6 Watts per square centimeter when the laser is operating in the ultraviolet range, such as at a wavelength of about 257 nm. The desired temperature to which the photocathode should be raised ranges from about

20 °C to about 200 °C above room temperature, depending on the composition of the photocathode. The time of exposure of at least one surface of the photocathode to the laser radiation also depends on the composition of the photocathode, the wavelength of the laser used to generate the radiation, and upon the ambient in which the exposure is carried out. However, after reading applicants' disclosure, and learning that direct exposure to radiation from the patterning laser does not render the photocathode unusable, one skilled in the art can, with minimal experimentation, determine the optimum temperature and the time period to provide an acceptable regeneration of the photocathode.

At Page 17, lines 11 - 18, the inventors disclose that a measurement of the degradation of the photocathode can be used to determine when the regeneration of the photocathode should be carried out, and then a regeneration can be done (with it being apparent to one skilled in the art that all of this would be directed by a process controller).

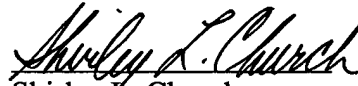
Support for the addition of Claims 26 and 27 appears in the specification of the application as originally filed at Page 16, lines 30 - 32, continuing at Page 17, line 1.

Support for the addition of Claims 28 - 30 appears in the specification of the application as originally filed at Page 15, line 32, continuing at Page 16, line 1.

Applicants contend that all presently pending claims as amended are in condition for allowance, and the Examiner is respectfully requested to enter the present amendments and to pass the application to allowance.

The Examiner is invited to contact applicants' attorney with any questions or suggestions,
at the telephone number provided below.

Respectfully Submitted,

A handwritten signature in cursive script, reading "Shirley L. Church".

Shirley L. Church

Registration No. 31,858

Attorney for Applicants

(650) 473-9700

Correspondence Address:

Patent Counsel

Applied Materials, Inc.

P.O. Box 450 A

Santa Clara, CA